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TECHNICAL NOTE

RANGE TECHNICAL NOTE NO. 6

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CALCULATING STOCKING RATES FOR CROP RESIDUES

Many cattle operations in South Dakota take advantage of crop residues as a source of forage in the late fall and early winter. Crop residues are usually only utilized late in the year (October through December). In some winters, snowfall limits the use of crop residues to shorter periods making them an often unreliable forage source. It is important to remember that adequate forage must be available to the livestock herds for the periods prior to the availability of crop residues as well as during the residue grazing period in the advent of inclement weather. Grazing of crop residues should not be used as a substitute for other forage sources which are in short supply.

Depending on the type and condition of crop residues, they may be low in energy or protein or both. Supplementation to maintain desired livestock performance may be required. Forage testing of the residue material and/or fecal sampling to determine forage quality is recommended.

Removal of crop residues by grazing will not usually result in an increase in erosion rates unless grazing pressure is extreme. It is, however, important to remember to account for residue removal by grazing when calculating soil losses on cropland.

Forage availability from crop residues is dependent on the crop grown, yield, cleanliness of the crop, harvest efficiency of the combine, lodging, disease, or other crop damage, method of harvest, and fall green up of volunteer crop and weeds. Generally, the only crops where residue is abundant enough to provide a significant amount of forage are corn and sorghum for grain and small grains. Forage quality of small grain residue is poor unless volunteer plants are present. Soybeans, sunflowers, silaged crops, and other low residue crops do not provide an adequate amount of residue for aftermath grazing. Due to the fact that weeds and volunteer crop plants are not always present in a crop field they should not be relied upon as a source of forage. Forage availability, and, therefore, long-term stocking rates should be based on the amount of crop residues produced. A table which provides the residue produced by crop is available in Section 1 of the South Dakota Technical Guide. Residue production estimates should be based on actual crop yields. The following method provides an easy way to calculate average stocking rates for crop residue grazing:

1. Obtain average crop yields for the fields to be grazed.
2. Multiply the crop yield by the amount of residue produced by the crop (i.e., 56 lbs. per bushel of corn harvested).
3. Multiply this figure by .2 for corn and sorghum or .1 for small grains.
4. Divide the results by 790 lbs. (AUM)

Example 1

Crop: Oats

Yield: 60 bushels

$60 \text{ bushels} \times 64 \text{ lbs./bushel} = 3,840 \text{ lbs. of residue}$

$3,840 \text{ lbs.} \times .1 = 384 \text{ lbs./ac. of available residue}$

$384 \text{ lbs./ac.} / 790 \text{ lb./AUM} = .49 \text{ AUM/ac.}$

Example 2

Crop: Corn for grain

Yield: 120 bushels

$120 \text{ bushels/acre} \times 56 \text{ lbs./bushel} = 6,720 \text{ lbs./ac.}$

$6,720 \text{ lbs. ac.} \times .2 = 1,344 \text{ lbs./ac.}$

$1,344 \text{ lbs./ac.} / 790 \text{ lbs./AUM} = 1.7 \text{ AUM/ac.}$